

1 VQE results Aer Estimator (With Shots)

(Full Hamiltonian)					Double Well		$\Lambda = 8$	COYBLA Max 10k Iterations			
Ansatz	Tolerance	Shots	Converged runs	Mean iter	VQE min E.	σ_{min}	Δ_{min}	VQE median E.	Δ_{median}	Exact	Time
RA r1 rl	1e-01	10000	100/100	41	9.7954e-01	1.9496e-01	9.4964e-02	3.0877e+00	2.2032e+00	8.8458e-01	01h 02m 22s
RA r1 rl	1e-02	10000	100/100	57	9.9471e-01	2.0743e-01	1.1013e-01	2.8097e+00	1.9251e+00	-	01h 20m 47s
RA r1 rl	1e-03	10000	100/100	70	1.0003e+00	1.9274e-01	1.1568e-01	2.954e+00	2.0694e+00	-	01h 36m 09s
RA r1 rl	1e-04	10000	100/100	89	8.1653e-01	1.9871e-01	-6.805e-02	2.8881e+00	2.0036e+00	-	01h 56m 13s
RA r1 rl	1e-05	10000	100/100	100	9.3657e-01	1.982e-01	5.1992e-02	2.8439e+00	1.9593e+00	-	02h 02m 02s
RA r1 rl	1e-06	10000	100/100	113	1.0897e+00	2.0405e-01	2.0515e-01	2.9635e+00	2.079e+00	-	02h 17m 56s
RA r1 rl	1e-07	10000	100/100	130	9.7402e-01	2.0172e-01	8.944e-02	2.6793e+00	1.7947e+00	-	02h 38m 44s
RA r1 rl	1e-08	10000	100/100	145	1.0869e+00	2.0422e-01	2.0228e-01	3.2625e+00	2.3779e+00	-	02h 56m 04s
Ansatz	Tolerance	Shots	Converged runs	Mean iter	VQE min E.	σ_{min}	Δ_{min}	VQE median E.	Δ_{median}	Exact	Time

Table 1